



## Sample preparation and coherent X-ray imaging of large cells at SIRIUS

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Coherent X-ray imaging has emerged as a powerful approach for visualizing whole biological cells at nanometric resolution without the need for labeling or sectioning. However, the successful application of these techniques to large and structurally complex cells depends critically on optimized sample-preparation workflows that preserve ultrastructure, minimize radiation damage, and maintain coherence compatibility throughout the experiment. In this talk, I will present strategies being developed at Sirius to prepare large mammalian cells for ptychography experiments. Emphasis will be placed on the challenges inherent in handling thick specimens, substrate and support selection, and mitigating mechanical and thermal instabilities during imaging. I will also present recent examples of how coherent X-ray imaging has been applied at SIRIUS to study the architecture of large biological cells. These results illustrate how the combined advances in preparation and imaging are allowing us to visualize cellular structures with greater clarity and reliability.